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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kazumi Takahashi

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04/22/2008

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,904

Applicant(s)

TAKAHASHI ET AL.

Examiner

BURTON MULLINS

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-16 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-13, 15, 16 and 25-30 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/06, 12/06, 5/07, 6/06, 6/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements submitted on 12/4/06, 12/27/06, 5/28/07, 6/1/06 and 6/9/06 have been considered by the examiner.

Response to Amendment

2. The preliminary amendments submitted 5/29/07 and 12/27/06 have been entered. Claims 1-9 and 17-24 were cancelled. Claims 10 and 14 were amended. Claims 25-30 were added.

Specification

3. The disclosure is objected to because of the following informalities: The plural of "Gauss" is --Gauss--, not "gausses" as used throughout the specification. Appropriate correction is required.

Drawings

4. The drawings are objected to because Figs.4-14 lack reference numbers for the elements shown in the drawing and mentioned in the specification. Further, Figs.1&2 require a "Prior Art" label since only that which is known is shown (see spec. p.33:20-22). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as

“amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 10 and 25 are objected to because of the following informalities: The plural of “Gauss” is –Gauss-- not “gausses”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 12-13, 25-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 12 and 27, the phrase “+/-10% in relation to a wavelength at which molecules undergo resonance reaction and is 1/N thereof, wherein N is a natural number” makes no sense since +/-10% of a particular wavelength is not the same as 1/N of the wavelength (N, a natural number, could be two, for example, which would make the

percentage 50%). Presumably this means the value of the generated IR wavelength is with the range of +/-10% of 1/N of a resonance wavelength.

In claims 13 & 28, recitation “where the members are in contact with the medium flow path” is vague and indefinite because “contact” implies the magnets directly contact the flowing medium, when in fact the magnets are arranged about and appear to contact the pipe (e.g., Figs.4-6). The phrase will be taken to mean the magnets are in the region of the flow path, around the pipe.

In claim 25, recitation “in relation to the medium flow path are provided” makes no sense and appears redundant.

In claim 30, the scope of the claim is not clear since it is not clear if this is an independent or dependent claim, nor is it clear how “industrial machinery” further limits it is it a dependent claim. For purposes of examination it will be treated as depending from claim 25.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 25 and 30, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Fujita (US 4,188,296). Fujita teaches an industrial machine such as a burner or motor (c.2:28) comprising a fluid medium flow path with magnetic members 2 (Fig.2), the magnetic members generating a magnetic force 6 in a direction substantially perpendicular

(transverse) to the flow direction (in pipe 11, c.4:32-48; Fig.2), wherein the magnetic flux density at the center of the flow path is set at 2000 to 5,000 gauss (c.1:47-50).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 10, 13, 15-16, 25, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuo (JP 2002-180833) in view of Yoshifusa (US 6,277,275). Regarding claims 10 & 25 Tatsuo teaches a “motor”, i.e. engine, comprising a cooling medium flow path (in pipe 4) to which magnetic members 6 are provided (Figs.2&3), the magnetic members generating a magnetic force in a direction substantially perpendicular to the flow direction (Figs.2&3). Tatsuo does not teach that the magnetic flux density at the center of the flow path is set at 2000 to 5,000 [gauss].

Yoshifusa teaches a magnetic treatment device comprising magnets 11/12 (Figs.2&5) applying a magnetic force to the inside of water supply pipe W. The magnetic field inside the pipe has a flux density of between 2800-3300 gauss (c.7:1-10). Yoshifusa’s device removes scale and sludge and also reduces field leakage (c.1:12-24&c.2:35-38).

It would have been obvious to modify Tatsuo and provide a magnetic flux density at the center of the flow path set at 2000 to 5,000 gauss per Yoshifusa since this would have removed scale and sludge and also reduced field leakage.

Regarding claims 13 and 28, Tatsuo Figs.2&3 disclose magnetic members 6 arranged in such a manner that mutually identical magnetic poles are juxtaposed, i.e., N poles are juxtaposed side by side, and S poles are juxtaposed side by side, about the pipe 4, in the region of the medium flow path.

Regarding claim 15, Tatsuo's device is for an automobile engine radiator (abstract).

Regarding claim 16, Tatsuo's engine is liquid-cooled (abstract).

Regarding claim 30, Tasuo's engine is an "industrial device".

11. Claims 11 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatsuo and Yoshifusa in view of Ito (US 5,055,189). Tatsuo and Yoshifusa substantially teach applicant's invention but do not teach far-infrared ray-generating members provided in conjunction with the magnetic members.

Ito teaches a water treatment apparatus including far infrared radiating ceramic members 12 & 13 (Figs.5&6) in conjunction with magnetic members 8 & 10 to activate the liquid (c.2:1-7).

It would have been obvious to modify Tatsuo and Yoshifusa and provide far-infrared ray-generating members provided in conjunction with the magnetic members per Ito to activate the liquid.

12. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita in view of Toshihiko (JP 09-271782). Fujita substantially teaches applicant's invention including mutually different identical magnetic poles on either side of the pipe 11 where the magnets are in contact with the medium flow path, but does not teach poles "juxtaposed" i.e., side by side.

Toshihiko teaches a magnetic water quality improving device comprising magnets with opposite poles juxtaposed side-by-side (Figs.3&14) in order to prevent field weakening in the central part of the flow line 11 (abstract).

It would have been obvious to modify Fujita and arrange plural juxtaposed magnets per Toshihiko to prevent field weakening in the flow line.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita in view of Ito (US 5,055,189). Fujita teaches applicant's invention but does not teach far-infrared ray-generating members provided in conjunction with the magnetic members.

Ito teaches a water treatment apparatus including far infrared radiating ceramic members 12 & 13 (Figs.5&6) in conjunction with magnetic members 8 & 10 to activate the liquid (c.2:1-7).

It would have been obvious to modify Fujita and provide far-infrared ray-generating members provided in conjunction with the magnetic members per Ito to activate the liquid.

Allowable Subject Matter

14. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Regarding claim 14, the prior art does not teach the further feature of the medium flow path is a bundled combination of a pathway through which a cooling medium passes together with a pathway through which a medium as a fuel passes, and further comprises magnetic members provided thereto, the magnetic members generating a magnetic force in a direction substantially perpendicular to the flow direction in each pathway.

15. Claims 12, 27 and 29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Regarding claims 12 and 27, the prior art does not teach the claimed motor including the feature of the wavelength of the far-infrared ray generated by the far-infrared ray-generating members is within $\pm 10\%$ of $1/N$ of a wavelength at which molecules undergo resonance reaction, wherein N is a natural number. Regarding claim 29, the prior art does not teach the further feature of the medium flow path is a bundled combination of a pathway through which a cooling medium passes together with a pathway through which a medium as a fuel passes, and further comprises magnetic members provided thereto, the magnetic members generating a magnetic force in a direction substantially perpendicular to the flow direction in each pathway.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BURTON MULLINS whose telephone number is (571)272-2029. The examiner can normally be reached on 9-5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

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information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BURTON MULLINS/
Primary Examiner, Art Unit 2834

bsm
18 April 2008